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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/795,769

Filing Date: March 08, 2004

Appellant(s): RUDOLPH ET AL.

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Thomas H. Magee  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 6/3/2008 appealing from the Office action mailed

4/6/2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

**WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The rejection based upon the Fujimoto reference has been withdrawn. The rejections based upon the now abandoned co-pending application have also been withdrawn. All other rejections stand.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,551,759	DAEMS et al.	4-2003
5,576,137	FRASS et al.	11-1996
WO 94/11198	HORSTEN et al.	5-1994
EP 465034	UEDA et al.	10-1992
6,994,026	DE VOEGHT et al.	2-2006

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daems et al (6,551,759) in view of any Frass et al (5,576, 137) or Horsten et al (WO 94/11198).

Daems et al disclose direct-to-plate flexographic printing plate precursor is disclosed comprising in the order given, a flexible support, a photopolymerizable layer containing an elastomeric binder, an image recording layer comprising a thermoplastic binder and optionally a cover layer. Preferred thermoplastic binders for use in the image recording layer are polyesters, poly(meth)acrylates, polyvinylacetates or copolymers thereof or elastomeric polyurethane resins. Suitable commercially available binders are Dynapol S1404 (from Huls A. G.), Carboset 525 (from Goodrich), Mowilith CT5 (from Hoechst), Vitel VPE5545 (from Goodyear) and Vinnapas B100 (from Wacker Chemie). According to the present invention the image recording layer is preferably a laser ablative layer that further comprises a light absorbing compound. Preferred light absorbing compounds are IR-absorbing dyes such as phthalocyanines or derivatives, cyanine dyes, merocyanine dyes and polymethine dyes or inorganic pigments such as carbon black, graphite, iron oxide or chromium oxide. Preferably carbon black is used. Furthermore

carbon black renders the ablative layer opaque to UV radiation, so there is no need to add an additional UV-absorbing dye. It is particularly preferred to use fine-grained carbon black with a mean particle size below 30 nm which is commercially available as Printex.RTM. U, Printex.RTM. L6, Specialschwarz 4 or Specialschwarz 250 (all trademarks from Degussa).

Suitable supports for the imaging material of the present invention are flexible but dimensionally stable materials such as films of polyethylene terephthalate, cellulose triacetate, polyethylene naphthalate, polybutylene terephthalate or polycarbonate that have a sufficiently high modulus. Also metal supports can be used. [0018] A photopolymerizable layer containing an elastomeric binder is provided onto the support. A preferred elastomeric binder is a photopolymerizable polyurethane resin derived from polymer forming reactions of (a) 10-50% by weight of at least one diisocyanate, (b) 0.5-20% by weight of a first chain extension agent having at least two free hydrogen groups and having at least one ethylenically unsaturated addition polymerizable group per molecule (optionally, a second chain extension agent may be present having at least two free hydrogen groups (0.5-20% by weight)) and (c) 10-70% by weight of an organic polyol having a molecular weight of at least 500 and containing at least two free hydrogen groups per molecule. The polyurethane resins used in the present invention have a molecular weight of at least 10,000 and a glass transition temperature of less than 65.degree. C. The polyurethane resins belong to a class of polymers known as segmented copolymers or multiphase polymers. The elastomeric properties of these polymers result from phase separation between so called 'hard' segment domains and 'soft' segment domains. The two phases are thought to exist as separate phases within the polymer. 25-70% of the segment domains are 'soft' segment domains. The photopolymerizable layer further comprises a free radical photoinitiator (0.5 to 8% by weight of

the elastomer). Other additives such as dyes, pigments or fillers can be present. [0019]

Optionally a primer layer is provided between the support and the photopolymerizable layer.

This layer preferably comprises aziridine functional compounds. The aziridine functional compounds are used in an amount of at least 10% by weight solids of the primer layer. The aziridine functional compounds may be diluted with solids that comprise inert compatible polymeric organic binders, coupling agents, particulates, comonomers, other priming agents and the like. The aziridine functional compound may also contain other functional groups. Preferably these groups are not reactive with the aziridine functionality under ambient conditions. Thus, for example, the aziridine-functional compound may also contain one or more hydroxyl groups.

Specific examples of aziridine functional compounds can be found in WO-A-92 21069.

Furthermore according to the present invention an antistatic layer can be present between the photopolymerizable layer and the image recording layer. Preferably a vanadium oxide antistatic layer is applied as described in EP-A-573 365. [0021] Optionally a cover layer can be applied on top of the image recording layer. Suitable cover layers comprise films of polyethylene terephthalate, cellulose triacetate, polypropylene, and polyethylene. Also resin coated paper or carriers coated with a release agent such as carnauba wax, organic silicones, tetrafluoroethylene telomers etc. can be used. [0022] According to the method of the present invention, after optional removal of the cover layer the flexographic printing plate precursor is image-wise exposed to form a mask. Preferred devices used for image-wise exposure are Nd/YAG lasers (1064 nm) or diode lasers (e.g. 830 nm). After the image-wise exposure the material is subjected to flood exposure with UV-light through the mask. Subsequently the flexographic printing plate precursor is developed by contacting the image recording layer with an absorbent material while heating by

convection, conduction or other heating methods to a temperature sufficiently high to liquefy the unexposed areas of the photopolymerizable layer and the mask. Thereby the unexposed areas of the photopolymerizable layer as well as the mask are thermally liquefied and transferred onto the absorbent material. Preferably the flexographic printing plate precursor is heated to a temperature between 50.degree. C. and 130.degree. C. The absorbent material has preferably a melting or softening temperature higher than the melting temperature of the elastomeric polyurethane resin and the thermoplastic binder of the image recording layer. The absorbent material is selected from non-woven web materials, paper stocks, fibrous woven materials, open-celled foam materials, porous sheets or other sheet materials which contain , more or less, a substantial fraction of their included volume as void volume. Preferably non-woven web materials made from polyesters, nylon or other high temperature melting thermoplastic polymers are used. Suitable commercially available non-woven web materials are Cerex (James River Corporation) and Soft Wipers White cleaning cloth (no. 010932 from EVI). In order to remove all the unexposed material together with the mask, the absorbent material is preferably contacted with the image recording layer at least three times. After separation of the absorbent material and cooling to room temperature, the flexographic printing plate can be mounted onto a printing press. While the reference teaches that a cover layer may be employed, the reference fails to teach the specifics of the layer.

Both Frass et al and Horsten et al teach matting layers/protective layers for flexographic plates comprising matte particles. These particles may be polymeric and are present in amounts of greater than or equal to 10% by weight of the layer in a binder (see column 3, line 50 to

column 5, line 35 of Frass and the abstract and page 3 of Horsten). Having the particles in these amounts protects the underlying radiation sensitive layer.

Given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the material of Daems et al choosing to employ the particles of either Frass et al or Horsten et al given that they are known and advantageous in the cover layers of such materials.

Claims 1-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda et al (EP 465034) in view of Frass et al or Horsten et al.

Ueda et al disclose a photosensitive resin composition for flexographic printing. The material comprises a support, a photosensitive resin layer and a matte layer, wherein the matte layer contains a polymerization inhibiting material (abstract; page 4, lines 6-11). The photosensitive resin layer can be any of the photosensitive layers known in the art (page 3, line 56 – page 4, line 5). Specifically Ueda et al. point to the photosensitive layer of US Patent No. 4,323,637 which comprises thermoplastic, elastomeric, block copolymer, a nongaseous ethylenically unsaturated compound, and an addition polymerization initiator (US 4,323,637 abstract). The matte layer is a resin matte layer comprising resins, dyes, inorganic particles (such as silica), organic microparticles, surfactants, distilled water and a polymerization inhibitor (page 2, line 36 – page 3, line 55). See Example 1. While Ueda et al. do not teach the specific characteristics of the silica inorganic particles such as the pore volume, BET surface, or oil number as instantly claimed, it is the Examiner's position the silica inorganic particles, also taught and preferred by Applicant (see page 8 of the instant specification), meet the present

limitations for the matting agent because these inherent characteristics are expected to fall within the required ranges. The reference is silent with respect to the preferred amount.

Both Frass et al and Horsten et al teach matting layers/protective layers for flexographic plates comprising matte particles. These particles may be polymeric and are present in amounts of greater than or equal to 10% by weight of the layer in a binder (see column 3, line 50 to column 5, line 35 of Frass and the abstract and page 3 of Horsten). Having the particles in these amounts protects the underlying radiation sensitive layer.

Given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the material of Ueda et al choosing to employ the matte particles in an amount as taught to be advantageous of either Frass et al or Horsten et al given that they are known and advantageous in the cover layers of such materials.

Claims 1-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Voeght et al (6,994,026) in view of Frass et al or Horsten et al.

De Voeght et al disclose a method for the preparation of a flexographic printing plate is disclosed. In this method an ink jet image is used as mask for the exposure of a flexo plate precursor. The ink jet recording material is composed of several layers and comprises a binder, a cationic mordant and a spacing agent in its top layer. The invention comprises a method for the preparation of a flexographic printing plate involving the following steps, in order: (1) preparing an ink jet recording material comprising (i) a transparent support having front and back sides, and (ii) at the front side a layer assemblage of at least two ink receiving layers, comprising a binder, a cationic mordant in at least one of these layers, and further a spacing agent in the top

layer of said assemblage, (2) jetting information-wise, according to digitally stored data, droplets of an UV-absorbing ink onto the front side of said ink jet recording material by means of an ink jet printer, thus forming a screened printed ink jet image, (3) flood exposing by actinic light a flexographic printing plate precursor through a master consisting of the ink jet image obtained by steps (1) and (2), (4) developing the exposed flexographic printing plate precursor into a flexographic printing plate. The nature and concentration of the spacing agent present in the top layer of the ink receiving pack must be chosen so that the best compromise between full-area density and transparency of the non-printed areas is obtained. Classes of useful spacing agents include following: amorphous or crystalline silica particles preferably having an average particle size between 0.1 and 15 .mu.m; polymethylmethacrylate beads or a derivative thereof such as copoly(methylmethacrylate-stearyl methacrylate 98%/2%), stabilized by poly(styrene-maleic acid, sodium salt); copolymers of methacrylic acid with methyl- or ethylmethacrylate; TOSPEARL siloxane particles, trade name of Toshiba Co.; SEAHOSTAR polysiloxane--silica particles (e.g. type KE-P50), trade name of Nippon Shokubai Co.; CHEMIPEARL, spherical polymeric particles, marketed by Misui Petrochemical Industries, Ltd.; the spherical polymeric beads disclosed in U.S. Pat. No. 4,861,818; the alkali-soluble beads of U.S. Pat. No. 4,906,560 and EP 584407; the insoluble polymeric beads disclosed in EP 466982. While DeVoeght et al. do not teach the specific characteristics of the silica inorganic particles such as the pore volume, BET surface, or oil number as instantly claimed, it is the Examiner's position the silica inorganic particles, also taught and preferred by Applicant (see page 8 of the instant specification), meet the present limitations for the matting agent because these inherent characteristics are expected

to fall within the required ranges. The reference is silent with respect to a preferred amount of matte particle.

Both Frass et al and Horsten et al teach matting layers/protective layers for flexographic plates comprising matte particles. These particles may be polymeric and are present in amounts of greater than or equal to 10% by weight of the layer in a binder (see column 3, line 50 to column 5, line 35 of Frass and the abstract and page 3 of Horsten). Having the particles in these amounts protects the underlying radiation sensitive layer.

Given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the material of De Voeght et al choosing to employ the matte particles in an amount as taught to be advantageous of either Frass et al or Horsten et al given that they are known and advantageous in the cover layers of such materials.

#### **(10) Response to Argument**

Appellant has argued that the references of record fail to teach the particles as instantly claimed. Firstly, it is noted by the examiner that the instant specification on page 8 describes suitable matting agents as: "The matting agent may be any inorganic or organic matting agent having one or more of the above described properties. Preferably, the matting agent is selected from the group consisting of silicas, silicic acids, silicates, like clays, kaolinites, zeolithes, then aluminas and/or aluminates, and mixtures thereof. Polymer beads may also be suitable as the matting agent. " These compounds are all well known and widely employed as matting agents well known and widely employed in the art. No specific products/brands or any real specifics are

provided as to particles from the widely known group would meet the instant claim limitations, just that those from the group meeting any of the 5 criteria.

Appellant has argued the references collectively stating that none of the particles of anyo the cites references describe particles meeting the instantly claimed criteria (see page 4, paragraph 4, page 5 paragraph 1, and page 6, paragraph 3). While it is true that none of the cited references specifically disclose the pore volume, BET surface information, the oil number, or in some cases a crosslinkable group, the references employ standard matting particles such as the silicas and clays described above, which as the examiner discussed above, are all well known and widely employed compounds. The portion cited of the instant specification does not point to a brand or type of specific silicas, and neither do the references as pointed out by appellant. Given that, one of ordinary skill in the art would have employed the most known and widely employed particles, those described by the references and by the instant specification, which if taught by the instant specification, it would be assumed would meet the criteria as claimed. Appellant has not shown that these particles do not meet the criteria, simply argued that the references do not specifically list the data, and therefore do not teach that the particles of the references inherently possess these properties. Furthermore, the Frass et al and Horsten references does teach polymeric particles having a crosslinkable group ( (meth)acrylates in Horsten and an acryloyl group in Frass) which have been discussed above and cited for both the teachings of particles in layers similar to those of the primary references and for amounts of matting agents. The particles of these references meet criteria IV, for particles having a crosslinkable group, and provide advantages for employing the particles in general and in the amounts they disclose. Therefore the examiner maintains the rejections of record.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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